

typewriter

mechanical to electronic



A typewriter is a mechanical, electromechanical, or electronic device that prints letters on paper.

Typewriters have changed significantly in the modern era. The most remarkable development was the transition from mechanical to electronic typewriters.

history

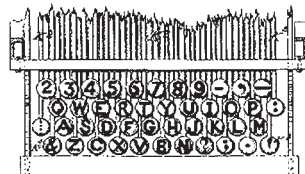
The first typewriter that enabled operators to write significantly faster than a person could write by hand was invented by Christopher L. Sholes and Carlos Glidden. Then E. Remington & Sons purchased the rights and manufacture began in 1874. To avoid jamming typebars with adjacent and commonly used pairs of letters, Sholes and Glidden intentionally arranged the keyboard layout in a way that made typists slow down. The name of the system "QWERTY" comes

from the first six letters in the top alphabet row. "QWERTY" system is still the standard for many keyboards. George Blickensderfer produced the first electric typewriter in 1902, but practical electric typewriters were used extensively after 1925. Compared to non-electric typewriters, electric ones respond to the light touch, and apply identical pressure leading to even depth and uniform color. The first electronic typewriter was invented by Olivetti in 1978 and came with a small memory chip that displayed what was being typed before it was actually transferred to paper, allowing the operator to go back and correct mistakes before they ruined the whole page.



1904 The woman typing the typewriter

P. & C. Weber collection



1878 Typewriter Patent Drawing, featuring the QWERTY Keyboard

IBM Marketing Photo Gallery

analog



Early Office Museum

1874

The first practical typewriter

Produced by Christopher L. Sholes and Carlos Glidden

Introduced by E. Remington & Sons



The Standard Historical Society

1902

The first electric typewriter

Produced and Introduced by George Blickensderfer



Technology Center

1961

The revolutionary typewriter

SELECTRIC TYPEWRITER

Produced and Introduced by IBM

Characterized by **spherical type ball** for eliminating of jams and allowing multiple fonts



IBM Marketing Photo Gallery

1978

The first electronic typewriter

ET-101

Produced and Introduced by Olivetti



buttech

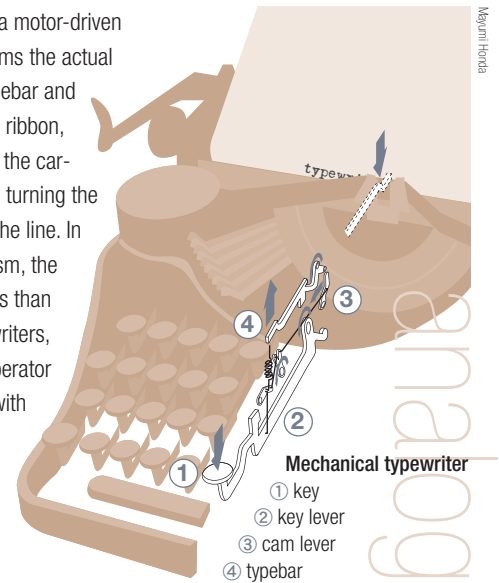
digital

mechanical tech

A manual typewriter is a mechanical device that contains a system of levers. It converts the small movement of a fingertip on a key into a long movement — in this case the movement of the raised type on the end of the typebar. As the typewriter is always played strongly, a simple system of levers suffices to mechanically connect the key to the type. Most manual typewriters use at least five levers between key and typebar. Pressing a key causes

mechanical force that transmits to each lever. By this mechanics, the typebar is lifted and strikes on the ink ribbon. For moving the paper between letters and between lines, most typewriters use a cylindrical platen, against which the paper is held firmly. Each typebar bears both upper-and lower-case letters. Pressing the shift key lowers the typebar so that the upper-case letter strikes the ribbon. The platen moves horizontally to produce the spacing between lines. An electric typewriter is an electromechanical

device that contains a motor-driven mechanism. It performs the actual work of lifting the typebar and striking it against the ribbon, and also of returning the carriage to the right and turning the platen at the end of the line. In the electric mechanism, the pressure is much less than on mechanical typewriters, and as a result an operator can type faster and with less fatigue.



electronic tech

A hybrid between electric typewriters and computers, electronic typewriters—which contain a microprocessor and microchips, can automatically center headings, align decimal points in numerical tables, and flag words that are not found in its spell-check memory. Most electronic typewriters also permit rudimentary editing of text before printing through the use of a small liquid crystal display window. Pressing a key generates an elec-

tric signal forming a code number that identifies the key. The code number is in the form of bits made up of on-off electric pulses. This digital signal of the code number goes through the pair of lines, the keyboard chip, the microprocessor, and the display chip or the print chip. For example, a metal contact in a rubber dome under key B touches two contacts at the end of a pair of lines. As the contact meet, a scanning signal goes along the lines to the keyboard chip. The chip converts the signal into the code

number 00110000 (base ten 48), and sends it out to the microprocessor. The code number is converted again to 01100010 (98) in the microprocessor, and travels to the display chip or the print chip that display the code number as the character.

today

Typewriters are now very rare in the Western World because personal computers have become very popular. Today, computers replace typewriters almost completely. Unlike typewriters that manage only one simple task, General-purpose personal computers with word-processing software largely deal with complicated multiple tasks.

The laptop computer
MAC PRO
Produced by Apple



Apple Computer Inc.

Electronic typewriter

- ① key
- ② rubber dome
- ③ contact
- ④ a pair of lines
- ⑤ keyboard chip
- ⑥ microprocessor
- ⑦ display chip
- ⑧ print chip

Resources

The History Channel
www.bistory.com

How Products Are Made
www.madehow.com

The New Way Things Work
by David Macaulay
Houghton Mifflin, Boston, 1998

Digital–Analog Design Punch Cards is a set of research cards designed and produced by the students of DSGD 186, Digital Applications Methodology, a third-year graphic design course at San Jose State University, Fall 2006. The set, composed of 1+26 cards, is by no means complete. Each topic was chosen and researched by the students, based on a theme presented by the instructor Pino Trogu, with help from Mauro Panzeri. This is card number 14 and it was designed by **Mayumi Honda**.



DSGD 186
Digital Applications
Methodology
School of Art and Design
San Jose State University
California, USA - October 2006
Digital–Analog Card No. 14
Printed by psPrint.com